

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[Docket No.]

RIN:

THORPEX: A Global Atmospheric Research Program.

AGENCY: Office of Oceanic and Atmospheric Research, National Oceanic and Atmospheric Administration, Commerce.

ACTION: Notice.

SUMMARY: The Office of Oceanic and Atmospheric Research (OAR), National Oceanic and Atmospheric Administration (NOAA), is soliciting preapplications (PA, or Letters of Intent) and proposals under the United States Weather Research Program (USWRP) for THORPEX: A Global Atmospheric Research Program . THORPEX is a major long-term international program aimed at improving the accuracy and utility of operational global numerical weather predictions (NWP) on time scales out to two weeks through international collaboration between the operational and research communities. This notice provides guidelines for the submission of full proposals.

DATES: Preapplications submitted by Principal Investigators (PIs) must be received at the Interagency Program Office of the USWPR no later than 5:00 pm Eastern Daylight Time (EST) on July 30, 2003. Response letters will be sent from NOAA no later than August 14, 2003. Full proposals submitted by Principal Investigators (PIs) must be received at the Interagency Program Office of the USWPR no later than 5:00 pm Eastern Daylight Time (EST) on September 15, 2003. Failure to follow these restrictions will result in proposals being returned to the submitter without review. In addition, applications should note those provisions under "Other Requirements/Information" that must be complied with before an award can be made.

ADDRESSES: Preapplications and Full proposals may be sent as printed hard copy to: John Gaynor, Director, Interagency Program Office of the U.S. Weather Research, Room 11116, SSMC 3, 1315 East West Highway, Silver Spring, MD, 20910; or they may be submitted electronically by sending in portable document format (PDF) via e-mail to John.Gaynor@noaa.gov with a copy to Zoltan.Toth@noaa.gov. Preapplications and full proposals must be submitted, in accordance with the requirements described in Section VIII of this notice. The standard NOAA Grants and Cooperative Agreement Application Package forms must be mailed to the above address as printed hard copy when the Full proposals are submitted.

The standard NOAA Grants and Cooperative Agreement Application Package, which contains required forms to be submitted with a full proposal can be obtained by contacting Karen King, DOC/NOAA, Office of Weather & Air Quality Research, Routing

Code R/WA, 1315 East-West Highway, Room 11216, Silver Spring, MD 20910, phone (301) 713-0460 ext. 202, email Karen.King@noaa.gov. The grants kit is also available on line at: <http://www.ofa.noaa.gov/%7Egrants/appkit.html> .

FURTHER INFORMATION: With questions regarding the application procedure, contact Karen King, DOC/NOAA, Office of Weather & Air Quality Research, Routing Code R/WA, 1315 East-West Highway, Room 11216, Silver Spring, MD 20910, phone (301) 713-0460 ext. 202, email Karen.King@noaa.gov. With scientific and programmatic questions potential PIs are encouraged to contact Zoltan Toth, NOAA THORPEX Program Manager, EMC/NCEP/NWS/NOAA, 5200 Auth Rd., Room 207, Camp Springs, MD 20746, phone (301) 763-8000 ext. 7268, e-mail Zoltan.Toth@noaa.gov.

SUPPLEMENTARY INFORMATION

I. PROGRAM AUTHORITY

Authority: 49 U.S.C. 44720(b), 33 U.S.C. 883d

II. CATALOG OF FEDERAL DOMESTIC ASSISTANCE (CFDA):

11.431 - Climate and Atmospheric Research

III. PROGRAM DESCRIPTION

This is the first U.S. Weather Research Program (USWRP) Announcement of Opportunity (AO) for THORPEX: A Global Atmospheric Research Program . On the international level, the THORPEX program is developed and implemented as part of the World Weather Research Program of the World Meteorological Organization. Currently, approximately 15 countries are participating in THORPEX and the Program has been

adopted as an official World Meteorological Organization (WMO) program (<http://www.mmm.ucar.edu/uswrp/programs/thorpex.html>). To focus attention on improving forecast skill over specific areas of the globe, currently several regional efforts are being organized. The North American THORPEX initiative is being prepared jointly by the United States and Canada. In the US, the participation of different agencies is coordinated by the USWRP.

The main purpose of THORPEX is to accelerate improvements in the accuracy and utility of operational global numerical weather predictions (NWP) on time scales out to two weeks through international collaboration between the operational and research communities. This includes doubling the rate of improvements in operational NWP forecasts, e.g. increasing the current level of 1 day gain in skill per decade to 2 days per decade; increasing the lead time range of useful NWP forecast skill, e.g. making 7-day forecasts as accurate as the 5-day forecasts are today; and increasing the utility of NWP forecasts by tailoring model output more directly to user needs through the use of probabilistic forecasts.

The weather forecasting process consists of four major steps:

- 1) Collection of observations to properly assess the initial state of the system;
- 2) Assimilation of all such data into a format ("analysis") used in Numerical Weather Prediction (NWP);
- 3) Generation of possible forecast scenarios given the analysis and its uncertainty, using NWP models;

- 4) Post-processing (synoptic and statistical) of NWP forecast data and their economic or societal applications.

Traditionally, the four sub-components of weather forecasting are developed separately. As a result, the forecast process consists of somewhat disjointed steps. This poses a serious limitation on improvement both in methods and performance.

THORPEX proposes to contribute to the development of a strategically new approach to forecasting. According to this new paradigm, the NWP forecast process will be:

- 1) Integrated. Improvements to the four sub-components will be designed, implemented, and evaluated in a coordinated fashion, based on the concept of end-to-end forecasting.
- 2) Adaptive. Observation, assimilation, forecast, and application procedures will vary depending on the case and forecast situation.
- 3) User controllable. All four components of the forecast process, if desired, will be driven by the case specific collective needs and requirements of the users.

The THORPEX objectives will be addressed through a long-term research program, coordinated within the USWRP, addressing basic scientific questions that will lead to the development of a new forecast paradigm, based on the above principles. Research in all four areas of weather forecasting - observing system development, data assimilation, NWP modeling and predictability, and socioeconomic applications – will be supported. A major, cross-cutting component of the research will be carried out through Observing

System Simulation Experiments (OSSEs), designed to test the potential impact of the proposed new observing platforms and techniques, advanced data assimilation techniques, advanced NWP models that include state of the art representation of physical processes, and ensemble approaches. The new in-situ and satellite observational platforms and their associated deployment strategies will also be tested in field programs organized over different parts of the world. The new techniques proposed by THORPEX research in the different areas of NWP forecasting will be assessed by carefully comparing their cost with their expected societal and economic benefits due to the expected forecast improvements. Therefore, the program is expected to deliver a set of cost-effective techniques that contribute to achieving the major forecast goals of the THORPEX program.

With this first AO, the THORPEX Program solicits proposals in the four sub-program areas established to address the major areas of weather forecasting: 1) Observing systems, 2) Data assimilation and Observing strategies, 3) Predictability, dynamical processes, and forecast procedures, and 4) Societal and economic applications. Studies of interest include field testing of new instruments, data impact studies, NWP modeling and predictability studies, and socioeconomic applications, as well as research activities that cut across the traditional boundaries of NWP disciplines. Collaborative efforts with operational NWP centers (e.g., the National Weather Service National Centers for Environmental Prediction, The Navy Fleet Numerical Meteorological and Oceanographic Center, the NASA Data Assimilation Office), where appropriate, are strongly encouraged.

NOAA's primary interest in THORPEX is medium- and extended-range (3-14 day) weather forecasting over the US. The practical goal of NOAA's THORPEX program is the development of new techniques that will accelerate the rate of forecast improvement over the next decade, to allow, for the first time, the issuance of detailed and skillful precipitation forecasts for the 3-7 day period; and daily weather forecasts for the 8-14 day period, both for the US, and in a probabilistic form. Since funds are limited, only studies with a clear potential to contribute to the THORPEX forecast goals will be considered for funding under the THORPEX Program. For more details on NOAA's THORPEX program interested, PIs are encouraged to consult the related THORPEX NOAA Long-term Research Program Plan (<http://www.mmm.ucar.edu/uswrp/programs/thorpex.html>). The majority of funding distributed under this AO is expected to support research addressing NOAA's THORPEX priorities as described in this paragraph. The rest of the funding (approximately 20%) will be used to support other THORPEX-related research as described in the THORPEX International Science Plan. Total funding is expected to be distributed among the four sub-areas and the cross-cutting activities in an approximately equal manner.

The following brief list of potential research topics is not all inclusive and is provided here only as a guidance. PIs are expected to address some of the topics discussed below, or other research questions related to the THORPEX objectives.

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A. OBSERVING SYSTEMS

THORPEX envisions an adaptive global observing system that is coupled to and interacts with new observation targeting and data assimilation strategies and technologies. The advanced global observing system will include ground-based, airborne, and satellite components that will be developed and evaluated with the aid of observing system simulation experiments and field campaigns. Priority research tasks include:

1. Develop new in-situ and remote sensing instruments and platforms that can best complement or fill any gaps in the current observing system
2. Develop intelligent sensor arrays, observing techniques, and instrument platforms to be used in a dynamically controlled, adaptive fashion.
3. Improve techniques for processing extensive sets of remotely sensed data:
 - (a) Refine existing methods, and develop new methods for:
 - (i) Combining remotely sensed and in-situ observations (calibration);
 - (ii) Deriving meteorologically relevant but not directly observed quantities;
 - (iii) Collapsing the vast amounts of observations, with minimal information loss, to a more manageable size (thinning or "super-observing");
 - (b) Estimate both correlated and uncorrelated errors in raw observations and retrieved products
 - (c) Prepare in advance for planned new satellite-based observations before launch for readiness upon acquisition

- (d) Evaluate which of the methods (a)-(i-iii) listed above are best applied prior to (on observing platforms or at ground data processing centers), or within the NWP data assimilation process, considering the final quality of NWP analysis products and also data transmission, processing, and other costs. This presents an opportunity to perform joint research with the Data Assimilation and Observing Strategies sub-program below.

DATA ASSIMILATION AND OBSERVING STRATEGIES

The focus of this subprogram is to improve both the assimilation process and the observing network. Research priorities include:

1. Improve techniques for the use of new and existing types of observations in NWP data assimilation techniques.

- a) Refine existing, and develop new techniques for the use of large amounts of remotely sensed data (e. g., forward models, super-obsing, etc)
- b) Compare the value in assimilating state variables at high resolution vs. traditional bulk radiances. This presents an opportunity to perform joint research with the Observing System sub-program cited above.
- c) Assess errors in observations (instruments), representativeness, and forward modeling. Characterize the spatial and temporal correlations and flow dependence of such errors.

- d) Develop techniques for the use of observational and other types of error information (e. g., flow dependent background error covariances) in advanced quality control and data assimilation procedures.
2. Develop and test sophisticated data assimilation schemes capable of using flow dependent error covariance information
- a) Develop improved and computationally efficient Four Dimensional Variational (4DVAR) data assimilation methods that can continually update forecast error covariance information;
 - b) Evaluate the strengths and weaknesses of various ensemble based data assimilation schemes. Develop fast, parallel computational algorithms for the update step of ensemble-based data assimilation schemes.
 - c) Compare the performance of 4DVAR and ensemble based data assimilation algorithms and explore whether their combination may bring further improvements.
 - d) Refine techniques for generating initial conditions for ensemble forecasting (initial perturbation techniques) to best account for errors in the initial value-related uncertainty. This presents an opportunity to perform joint research with the Predictability, Dynamical Processes, and Forecast Procedures subprogram.
 - d) Explore the effects of data assimilation applications in the presence of model error, and develop new assimilation methods applicable in such an environment.
3. Investigate adaptive observing strategies

- a) Explore the use of fast analysis procedures in the local use of high density adaptive observations;
- b) Develop adaptive observation techniques applicable in areas other than mid-latitude cyclones, and in the presence of strong non-linearities and model errors;
- c) Assess the effectiveness of various adaptive observing techniques in predicting the impact of (supplementary) observations on the quality of analysis and forecast products.

C. PREDICTABILITY, DYNAMICAL PROCESSES, AND FORECAST PROCEDURES

The purpose of this sub-program is to identify and critically assess the limitations in current weather forecast procedures, including numerical modeling and ensemble procedures, with the aim of developing and introducing innovative solutions for the amelioration of the limitations. Key research areas include:

1. Evaluate the relevance of transient, non-modal processes in the growth of forecast errors.: Refine ensemble perturbation techniques to best account for errors in initial value related uncertainty. This work offers an opportunity for joint work with the Data Assimilation sub-program.
2. Develop and refine methods for separating model-related forecast error from initial value related errors.

- a) Analyze to what extent model errors exhibit stochastic or systematic behavior.
 - b) On different spatial and temporal time scales, identify what atmospheric features/phenomena are affected most by model-related errors or drift;
3. Assess what critical model features/processes are responsible for generating model-related errors:
- a) Identify what model components are responsible for the NWP models' inability to faithfully represent atmospheric processes and variability (e.g., Rossby wave propagation, Pacific North Atlantic Oscillation, Intra-seasonal oscillations), critical to weather forecasting applications;
 - b) Improve the formulation of NWP models, including techniques used to couple different model domains and components, to reduce model related errors;
 - c) Develop techniques to explicitly account for model-related forecast uncertainty in ensemble forecasting;
 - d) Assess the applicability of adaptive procedures in NWP modeling and ensemble techniques.

D. SOCIETAL AND ECONOMIC APPLICATIONS

This sub-program will focus on developing new methods that can bridge the gap between the providers and users of weather forecasts on one hand, and other methods that can be used to assess the costs and benefits of improved THORPEX forecast procedures.

Priority areas of research include:

1. Refine existing methods, and develop new and more efficient methods for the use of NWP forecasts
 - a) Improve statistical forecast post-processing techniques to reduce systematic forecast errors;
 - b) Explore what new meteorological information could potentially enhance forecast utility;
 - c) Develop methods for the application of new, probabilistic forecast information by intermediate (human forecasters) and end users.
2. Develop methods for the evaluation of costs associated with different aspects of the NWP forecast system, including those shared by various users (e. g., satellite observations). Assess the costs associated with the potential introduction of the new observing, data assimilation, and forecast procedures proposed by THORPEX. This presents an opportunity to perform joint research with all of the other subprograms.
3. Adapt existing, and develop new techniques for estimating the societal/economic benefits of improved NWP forecasts for individual users, sectors of the economy, and the society as a whole. Based on the results, assess the feasibility of developing new NWP verification measures that may better reflect the societal value of forecasts.
4. Study the societal aspects of adaptive NWP procedures, such as targeted observations and data assimilation and forecast applications tailored to specific applications. Develop guidelines and procedures that ensure the equitable use of NWP resources.

E. CROSS-CUTTING TASKS

One of the main purposes of the THORPEX program is to foster interdisciplinary research in the area of weather forecasting. In the course of the THORPEX program such cross-cutting research will become progressively more important. Research areas critical to achieving the major THORPEX objectives include:

1. Evaluate the data needs of the NWP forecast process based on Observing System Simulation Experiments (OSSEs) and field testing. Study the trade-off between observing more variables, vs. at higher spatial or temporal resolution, vs. with lower observational error for forecast applications on different time and spatial scales.
2. In the framework of OSSE experiments and field programs, evaluate the value of existing and proposed new in-situ and remote components of the observing system in providing the observational information. Propose observing system configurations that can satisfy the ideal needs of NWP forecasting at a minimum cost. Assess the value of adaptive observing techniques in achieving these goals
3. In the framework of OSSE experiments, evaluate the relative value of improvements in the observing system, data assimilation procedures, vs. numerical modeling and ensemble techniques, with the goal of optimizing the use of overall resources
4. Based on the methods and techniques developed in the research activities of the four sub-programs, and on the results of the cross-cutting activities discussed above, develop a small number of configurations for the new, interactive NWP forecast system. In a realistic forecast environment, test one or two of the integrated global NWP system candidates that performed best in OSSE experiments. If necessary, carry out a major

field program to demonstrate the feasibility and value of the new observing, data assimilation, forecasting, and application procedures.

IV. FUNDING AVAILABILITY: The total estimated funding that will be available in FY 2004 will not exceed \$1,500,000, but this amount is expected to increase substantially in future years. It is anticipated that between 10 and 15 proposals will be funded in 2004. Funding of any THORPEX proposals is contingent upon availability of these funds. Although there are no restrictions on amount, it is likely the awards will range from \$25,000 to \$200,000.

V. FUNDING INSTRUMENT: The funding instrument will be Grants.

VI. ELIGIBILITY: Eligible applicants are institutions of higher education, other non-profits, commercial organizations, international organizations, state, local and Indian tribal governments, and Federal agencies. Applications from non-Federal and Federal applicants will be competed against each other. Non-Federal applicants whose proposals are selected for funding will receive grants. Proposals selected to fund NOAA scientists shall be effected by an intra-agency fund transfer. Proposals selected for funding from a non-NOAA Federal agency will be funded through a inter-agency transfer. Please Note: Before non-NOAA Federal applicants may be funded, they must demonstrate that they have legal authority to receive funds from another Federal agency in excess of their appropriation. Because this announcement is not proposing to procure

goods or services from applicants, the Economy Act (31 U.S.C. 1535) is not an appropriate legal basis.

VII. AWARD PERIOD: The period of awards is from one up to three years. All funded PIs are required to submit written semiannual reports during the project to describe the progress made toward the goals established in the original proposal and agreed-upon time line. A final report must also be submitted at the conclusion of the project. The due dates for these reports will be coordinated with the Director, USWRP IPO upon project initiation.

Two- (and three-) year projects will be reviewed by the Director of the USWRP IPO and/or other designated reviewers, near the end of the first (and second) year for suitability for continuation into the second (and third) years. PIs are required to submit renewal proposals along with the second (and third) semiannual report for this review. The renewal proposals must provide updates to the research work plan, and budget etc. Favorable recommendations for continued support is also based upon the semiannual. The criteria upon which the renewal review is based are: 1) research progress toward milestones in the original time line, and 2) appropriateness and reasonableness of the budget with respect to available THORPEX research funds. Given a favorable review, each project may be funded for a second (and third) year(s).

VIII. SUBMISSION REQUIREMENTS: The guidelines for preparation of pre-applications and full proposals provided below are mandatory (except where otherwise noted).

Failure to adhere to these guidelines will result in full proposals being returned without review. See the "Dates" and "Addresses" sections following the "Summary" earlier in this notice for submission deadlines and addresses.

A. Preapplications (PA)

(1) Prior to submitting a full proposal, PIs are strongly encouraged to submit a PA for each planned proposal. However, PIs who do not submit a PA will not be precluded from submitting a full proposal.

(2) The PA must be no more than two pages in length, using a 12- point font and one inch margins, and it must include the name(s) of the PI(s) and their home institution(s).

(3) The PA must contain a brief description of the intended project.

(4) The PA must include a brief budget which summarizes how resources will be allocated [e.g., salaries, computing and communications, equipment (provide justification), indirect charges, and travel]. Note that funding for secretarial support and IT improvements at the PI's home institution is not generally available.

(5) Each PA will be reviewed, following the criteria specified below in Section IX of this notice.

(6) PIs will not be encouraged to submit a full proposal for any PA deemed to be unresponsive to this notice. However, they will not be precluded from submitting a full proposal for any such PA.

B. Proposals:

(1) The proposal must include a title page signed by the PI(s) and the appropriate representative(s) of their home institution(s). Each PI and institutional representative should be identified by full name, title, organization, telephone number, mailing address, and e-mail address.

(2) A one page abstract must be included and must contain a brief summary of the work to be completed. The abstract must appear on a separate page, headed with the proposal title and the name(s) of the PI(s) and their home institution(s).

(3) All proposals must provide a Statement of Work that includes:

(a) The proposed duration of the project, from one, two or three years;

(b) A description of the research, with prior research results (including references) to demonstrate sufficient potential for a successful completion of the proposed research

(c) A work plan for the research, including hardware and software needs, technique development, a time line with key milestones;

(d) Schedule for the research. PIs are strongly encouraged to plan on attending, and presenting their work at THORPEX meetings sponsored by the USWRP or other organizations. Costs for such travel should be included in the budget of the project.

(4) Applicants must submit a budget using the Standard Form 424A (9/97), Budget Information--Non-Construction Programs. This form is included in the standard NOAA Grants and Cooperative Agreement Application Package (see "Addresses" section that follows the "Summary" earlier in this notice). The budget must include PI and scientific

and technical support staff salaries, computing and communications funding, equipment funding (provide justification), indirect charges, and travel. Note that funding for secretarial support and IT improvements at the PI's home institution is not generally available.

(5) Applicants must also use the following forms when applying for financial assistance: Standard Forms 424, Application for Federal Assistance, 424B, Assurances - Non-Construction Programs, and SF-LLL (Rev. 7-97); Department of Commerce forms CD-346, Applicant for Funding Assistance, and CD-511, Certifications Regarding Debarment, Suspension and Other Responsibility matters: Drug-Free Workplace Requirements and Lobbying. These forms are also included in the standard NOAA Grants and Cooperative Agreement Application Package (see "Addresses" section that follows the "Summary" earlier in this notice).

(6) An abbreviated Curriculum Vita for the PI must be included. Reference lists should be limited to all publications in the last three years with up to five other relevant papers.

(7) Current and pending Federal support: Each investigator must submit a list that includes project title, supporting agency with grant number, investigator months, dollar value and duration. Requested amounts should be listed for pending Federal support.

(8) Additional proposal requirements include:

- (a) One signed original and two hard copies of the complete proposal must be submitted (submission of five additional hard copies is encouraged, to expedite the review process, but is not required);
- (b) Each proposal must be dated with pages numbered;
- (c) Items 3a through 3d above must be contained within no more than fifteen pages, using a 12-point font and one-inch margins.

IX. EVALUATION CRITERIA: The proposals will be evaluated based on the following criteria (with their relative weights):

a) Importance/Relevance and Applicability of Proposal to the program goals. This criterion ascertains whether there is intrinsic value in the proposed work and/or relevance to NOAA, federal, regional, state, or local activities. For the THORPEX competition, this includes: Ability to demonstrate how the research results will directly lead to improving NWP forecast skill at operational centers, or support other activities achieving that goal, including a credible path to operational implementation (35%).

(b) Technical/ Scientific merit. This criterion assesses whether the approach is technically sound and/or innovative, if the methods are appropriate, and whether there are clear project goals and objectives. For the THORPEX competition, this includes: The overall quality of the science plan, including its ability to place the proposed research into the context of related THORPEX and other activities in the field (35%).

(c) Overall Qualification of Applicants. This criterion ascertains whether the applicant possesses the necessary education, experience, training, facilities, and administrative resources to accomplish the project. For the THORPEX competition, this includes: Preparedness of the investigators (scientific background and productivity), and the availability of adequate facilities to carry out the research, including potential partnership with operational centers or other collaborators if necessary (15%).

d) Project Costs. This criterion evaluates the budget to determine if it is realistic and commensurate with the project needs and time-frame. For the THORPEX competition, this includes: The ability to demonstrate good budgetary planning practices. Under this AO matching funds are not required. However, since funding is limited, for costs associated with experimental field projects potential PIs are strongly encouraged to consider multiple or collaborative use of field resources, and seek out additional funding sources from other interested programs (10%).

e) Outreach and Education. This criterion assesses whether the project provides a focused and effective education and outreach strategy regarding NOAA's mission to protect the Nation's natural resources. For the THORPEX competition, this includes: The potential of the proposed work to promote awareness of, and build partnerships with NOAA's efforts regarding its 3rd Mission Goal to "Serve society's needs for weather and water information (5%).

X. SELECTION PROCEDURES:

An initial administrative review is conducted to determine compliance with requirements and completeness of the application. Preapplications will be evaluated by the NOAA THORPEX Program Manager based on reviews from a NOAA THORPEX technical advisory group.. Merit review of the full proposals is conducted by peer panel reviewers. Each reviewer will individually evaluate and rank proposals using the evaluation criteria provided above. At least three reviewers, consisting of federal or non-federal experts, will be used in this process. The merit reviewers' ratings are used to produce a rank order of the proposals. The reviewers will provide their scores to the NOAA THORPEX Program Manager, who will compute average scores and provide the scores and any information relevant to the Selection Factors (listed in the next paragraph) to the Director, Office of Weather and Air Quality Research (W&AQR) of NOAA's Office of Oceanic and Atmospheric Research for selection. In making the final selections, the Director of W&AQR will award in rank order unless the proposal is justified to be selected out of rank order based upon one or more of the selection factors below. The Director of W&AQR may negotiate the funding level of the proposal. The Director of W&AQR makes final recommendations for award to the Grants Officer who is authorized to obligate the funds. Unsuccessful applicants will be notified of the final selection upon completion of the review and selection process. Copies of all submitted proposals will be retained by the USWRP IPO.

Selection Factors

The Merit review ratings shall provide a rank order to the Director of W&AQR for final recommendation to the NOAA Grants Officer. The Director of W&AQR shall award in rank order of the merit review ratings unless the proposal is justified to be selected out of rank order based upon 1, 2b , 2d, 3, 4, and 5 of the following factors:

1. Availability of funding
2. Balance/distribution of funds
 - a. Geographically
 - b. By type of institutions
 - c. By type of partners
 - d. By research areas
 - e. By project types
3. Duplication of other projects funded or considered for funding by NOAA/federal agencies
4. Program priorities and policy factors
5. Applicant's prior award performance
6. Partnerships with/Participation of targeted groups

For Factor 2.b., NOAA seeks to distribute half of the funds to non-NOAA institutions, and involve as many institutions as possible.

For Factor 2d: Total funding is expected to be distributed among the four sub-areas and the cross-cutting activities in an approximately equal manner.

For Factor 4: The majority of funding distributed under this AO is expected to support research addressing NOAA's THORPEX priorities as described in Section III. The rest of the funding (approximately 20%) will be used to support other THORPEX-related research as described in the THORPEX International Science Plan.

The Department of Commerce Pre-Award Notification of Requirements for Grants and Cooperative Agreements contained in the Federal Register Notice of October 1, 2001 (66 FR 49917), as amended by 67 FR 66109 (October 30, 2002), are applicable to this solicitation.

Intergovernmental Review

Applications under this program are not subject to Executive Order 12372, "Intergovernmental Review of Federal Programs."

Services for the Deaf

The NOAA Office of Oceanic and Atmospheric Research does not have direct Telephone Device for the Deaf (TDD) capabilities , but can be reached through the State of

Maryland-supplied TDD contact number, 800-735-2258, between the hours of 8:00 am and 4:30 pm.

Executive Order 12866

This notice has been determined to be not significant for purposes of Executive Order 12866.

Paperwork Reduction Act

This notice contains collection-of-information requirements subject to the Paperwork Reduction Act. The use of Standard Forms 424, 424A, and SF-LLL has been approved by OMB under the respective control numbers 0348-0043, 0348-0044, and 0348-0046. Notwithstanding any other provision of law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the Paperwork Reduction Act, unless that collection displays a currently valid OMB control number.

Executive Order 13132

It has been determined that this notice does not contain policies with Federalism implications as that term is defined in Executive Order 13132.

Regulatory Flexibility Act

Because notice and comment are not required under 5 USC 553, or any other law, for this notice relating to public property, loans, grants benefits or contracts (5 USC 553(a)), a Regulatory Flexibility Analysis is not required and has not been prepared for this notice, 5 USC 601 et seq. pursuant to Executive Orders 13256, 12900, and 13021, the Department of Commerce, National Oceanic and Atmospheric Administration.

In accordance with Federal statutes and regulations, no person on grounds of race, color, age, sex, national origin, or disability shall be excluded from participation in, denied benefits of, or be subjected to discrimination under any program or activity receiving financial assistance.

Louisa Koch Date
Deputy Assistant Administrator

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Office of Oceanic and Atmospheric Research
National Oceanic and Atmospheric Administration